

UNITED STATES PATENT OFFICE.

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CONTACT-BOX FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 717,070, dated December 30, 1902.

Application filed November 30, 1901. Serial No. 84,237. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MILT. BROWN, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Contact-Boxes for Electric Railways, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

10 This invention relates to electric contact-boxes for that class of electric railways in which an underground circuit-closer is operated by a traveling magnet carried by a passing car. The circuit-closer is preferably in-
15 closed in an insulating vessel contained within the contact-box, and it is of great importance that simple and efficient means be provided for establishing an electrical connection between one of the contacts or electrodes
20 of the circuit-closer and the supply cable or feeder and that such connection be of a character to prevent current leakage and that it be capable of being readily made and unmade. It is also important that means be provided
25 within the sealed vessel containing the circuit-closer for guarding against current leakage.

The objects of the present invention are, first, to provide a means of connection between the supply cable or feeder and one of the
30 circuit-closing contacts or electrodes which will fulfil the requirements above specified, and, second, to provide means for effectually preventing current leakage in the vessel containing the electrodes.

35 With these objects in view my invention consists in the novel construction, combination, and arrangement of parts, all as hereinafter described, and pointed out in the appended claims.

40 In the accompanying drawings, Figure 1 is a central vertical longitudinal section of a contact-box embodying my invention. Fig. 2 is a vertical section of the sealed bell or vessel containing the circuit-closer, the section
45 being taken in a central plane at right angles to that of Fig. 1. Fig. 3 is a plan view of the insulating-annulus, and Fig. 4 is a plan view of the conducting member with which the connection between one of the electrodes and
50 the supply cable or feeder is effected.

The letter A designates the insulating body

portion of the contact-box; B, the cover-plate thereof; C, the bell or vessel which contains the circuit-closing electrodes *c* and *c'*, and D designates liquid or semiliquid insulating
55 material.

E is a supply cable or branch feeder, upon which a number of contact-boxes are designed to be connected in series.

E' designates a suitable conduit for said
60 cable or feeder, and F F' are hollow members through which the cable is carried up into the contact-box.

The bell or vessel C, together with the construction and arrangement of the circuit-clos-
65 ing electrodes *c* and *c'*, is in general similar to that described and claimed in the patent to G. H. McFeaters, No. 618,179, of January 24, 1899, the electrode *c'* being carried by a
70 movable armature *c*², which is connected by a flexible or jointed conductor *c*³ with a conducting-plug *c*⁴, seated in and extending down through the bottom of the bell or vessel C.

Seated upon an internal shoulder of the hollow sleeve member F' is a block G, of in-
75 sulating material, having embedded in its central portion a metallic conducting-piece *g*. This piece *g* has a vertical aperture *g'* extending therethrough and is also formed with a portion which projects above the block G and
80 has therein a transverse slot *g*², which intersects the vertical aperture *g'*, as shown in Figs. 1 and 4. A loop of the cable or feeder E is brought up into the box and is then cut,
85 and the conductor thereof is bared for a short distance at each side of the cut, as shown at *h*. These bared portions of the conductor are carried up through the aperture *g'* of the piece
90 *g*, and their end portions are bent outwardly in opposite directions into the arms of the slot *g*². They are then secured by means of a screw-plug H. This screw-plug preferably
95 has a conical end portion which in seating the plug enters between the bared portions *h* and forces them into close contact with the walls of the aperture *g'*, which are slightly grooved, as shown in Fig. 4, to receive them. As the
100 plug is further turned to its seat this screw-thread will embed itself somewhat in the portions *h*, and thus secure a more perfect electrical contact between them and the plug H. This plug is electrically connected with the

plug c^4 by means of a two-part spring-clip h' , (see Fig. 2,) which embraces the flattened head of the plug H.

The bell or vessel C can when necessary be quickly removed from the contact-box by simply lifting it out of place, and thereby disengaging the clip h' , and the block G can also be removed at any time to permit access to the cable by unscrewing and removing the plug H. No difficulty is experienced in entering said plug in seating it, as it is guided into engagement with the bared portions h by means of the interiorly-threaded walls of the aperture g' .

I will now describe the second feature of my invention, which has for its object, as above stated, the prevention of current leakage in the bell or vessel C. The insulating material of which this member is composed is more or less affected by the action of electric arcs, which by contact with these interior surfaces causes carbonization thereof to a greater or less extent. In use arcs will sometimes hang between the electrodes, thereby causing this carbonization, and as the armature c^2 has heretofore rested directly on the inner surface of the vessel so affected there has sometimes resulted a current leakage from the armature through the carbonized surface to the conducting-piece at the top of the vessel, which is connected to the cover B. To prevent this, I place within the bell or vessel an annulus P, having internal projections p , which seat and carry the end portions of the armature. This annulus is formed of porcelain, reconstructed granite, or other insulating material of a nature such as will not be affected by the action of electric arcs and serves not only to hold the armature out of contact with the bell or vessel but also to protect the latter very largely against the deteriorating action of arcs.

It will be obvious that changes may be made in the details of construction herein shown and described without affecting the spirit and scope of my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a contact-box for electric railways, the combination of a cable or feeder having a severed bared portion, a conducting member in which the ends of the bared portion are seated, and a screw-plug adapted to seat between said ends.

2. In a contact-box for electric railways, the combination of a cable or feeder extending within the box and having its conductor bared and severed, a conducting member having an aperture in which the bared conductor portions are seated, and a slot communicating with said aperture to receive the outwardly-turned ends thereof, and a screw-plug adapted to seat between said ends.

3. In a contact-box for electric railways, the combination with a cable or feeder extending within the box and having its conductor bared and severed, of a conducting member having an aperture therethrough and a slot intersecting said aperture to receive the end portions of the bared conductor, and a screw-plug having a threaded seat in said conducting member and engaging the end portions of the conductor.

4. In a contact-box for electric railways, the combination of the cable or feeder, its conduit, and the hollow members filled with insulating material through which the cable or feeder is led into the box, of the insulated conducting member arranged to seat the bared end portions of said cable or feeder, the conducting-screw seated between said end portions, and the bell or vessel containing the circuit-closing devices and having a spring contact device engaging the head of said screw.

5. In a contact device for electric railways, the combination of the sealed bell or vessel containing the circuit-closing electrodes, of the insulating annulus seated in said bell or vessel and supporting the armature of the movable electrode.

In testimony whereof I have affixed my signature in presence of two witnesses.

W. MILT. BROWN.

Witnesses:

CORA G. COX,
H. W. SMITH.